

Strait, the storm remained stationary or moved very, very slowly, for many hours during the day (Apr. 6); then during the night it moved to a position between the Island of Marinduque and Bondoc Peninsular (Apr. 7, 6 a. m.). It now moved slowly to a position between Infanta, Tayabas, and Manila (Apr. 7, 2 p. m.), passing close to and south of Infanta and beginning to weaken. It continued on this NW. course, crossing Central Luzon and entering the China Sea as a depression.

A few remarks are in order concerning the positions given for April 4 and 5. These are based upon a few ships' reports copied from their logs upon arrival at Manila. Judging by the observations made at Borongon and Guiuan, the typhoon approached these stations on a westerly course, indicating that the positions given above may be too far north.

The barometric minima recorded by Weather Bureau stations near the track of the typhoon are of interest. Borongon recorded the low minimum of 710.38 mm (27.968 in.) with winds of force 12 from the N., April 6, 6 a. m. Guiuan had 739.28 mm (29.106 in.) with winds of force 9 from the WSW., April 6, 6:30 a. m. Infanta, Tayabas had a minimum of 748.84 mm (29.482 in.) with winds of force 10 from the NE., April 7 at 1:50 p. m. Three hours later, however, the wind was only force 6 and from the SSW., an indication of the rapid decrease in intensity of the typhoon as it was moving into Central Luzon. At Catbalogan and Calbayog, instruments and records were lost, due to the intense winds, and no dependable values of the pressure at those locations are available.

Concerning the loss of life, there were 37 dead in Samar, 22 in Tayabas Province, and 1 in Sorsogon Province, according to official reports. Besides the total of 60 given above, an uncertain number of fishermen from the town of Guinayangan, Tayabas, were lost. The Manila newspapers, April 11, reported that 100 fishermen had set out over the northern part of Ragay Gulf during the night of April 6 and, of this number, only 17 bodies, washed up on the shore could be found. Then, an unofficial report given out by the papers, April 15, stated that 16 fishing boats manned by 78 men were caught by the typhoon. Of these men, 58 were accounted for and only 20 were missing. Further investigation is required for an accurate report. The property loss consisted of extensive destruction to light-material houses and considerable damage to strong-material buildings. The town of San Narciso, on the eastern coast of Bondoc Peninsula, was practically ruined. The mail boat at San Narciso, was thrown upon the shore. Along the course of the typhoon, up to the point where it began to weaken, rice and coconut crops suffered.

There are some aspects connected with this typhoon which may be of interest to readers of the MONTHLY WEATHER REVIEW. On April 4 and 5, the typhoon was over the ocean, moving slowly toward the archipelago. It increased its speed just as an anticyclone to the north increased in intensity, and approached the Island of Samar quite rapidly. Once the typhoon was over the archipelago, it could be seen that there was no extensive current of Southwest Monsoon air. While the typhoon was situated over the western portion of San Bernardino Strait (Apr. 6) between Masbate Island and Sorsogon Province, Surigao, Cebu and Iloilo reported SW. winds (the typhoon being 120 to 150 miles away). Judging from data available at the present writing, this current of air apparently did not extend any further to the southwest.

During the few days preceding the appearance of the typhoon, the pilot-balloon-ascension reports received by radio from the United States naval station at Guam have some points of interest. The 6 a. m. ascents show that the air currents were from the ENE. on March 30 at velocities of 8 and 9 m. p. s. up to 3,000 meters, then decreasing aloft. On March 31, however, the direction remaining practically ENE., there is an increase of velocity of the air stream (12 m. p. s.) with indications of stratification; that is, an increase and decrease and then increase of velocity with altitude. On April 1, the velocity remains the same as the preceding day, but the direction is shifting to the ESE. at 1,500 meters. On April 2, with velocity remaining the same, the current of air is now from the SE. up to 3,000 meters. Rain prevented an ascent on the 3d. During the afternoon of April 1, the typhoon was forming about 400 miles SSW. of the station.

At Manila, through the kindness of United States Army officials at Nichols Field and at Fort Mills, the writer obtained the records of morning ascents from April 1 to 5, showing the air currents over Manila as the typhoon approached Samar Island, which is about 300 miles southeast of the city. The pilot-balloon data show an ENE. current aloft varying irregularly in intensity. On April 3, 7 a. m., this ENE. current increased from 5 m. p. h. to 20 m. p. h. up to 1,500 meters, then decreased to 9 m. p. h. at 2,500 meters, then increased to 19 m. p. h. at 4,000 meters. The typhoon was, at this time, about 900 miles to the ESE. of Manila. On April 4, there were ENE. and NE. winds aloft, steadily increasing with altitude to 24 m. p. h. at 2,500 meters, and then decreasing to 12 m. p. h. at 3,500 meters and then increasing to 20 m. p. h. at 4,500 meters, the typhoon now being about 600 miles ESE. of the city. On April 5, when the typhoon was about 500 miles away from the city, the ascent is almost a duplicate of that of the preceding day, except that the velocities at 4,500 meters are weaker. After studying records of ascents made during the latter part of 1934 at Guam and at Manila, a period when typhoons formed frequently and moved rapidly, the writer has received the impression that this stratified condition of the atmosphere as manifested in pilot-balloon ascension reports, may be used in forecasting the progress of the typhoon as well as for giving information concerning its structure.

SEA-SURFACE TEMPERATURE SUMMARY FOR THE NORTHWESTERN GULF OF MEXICO, 1912-33

By GILES SLOCUM

The monthly mean sea-surface temperatures in a representative area in the northwestern quadrant of the Gulf of Mexico are given in the accompanying table. The period covered is from January 1912 to December 1933, inclusive. There are 2 months, as noted in the table, for which no observational data are available. The observations of sea-surface temperatures for the years 1917, 1918, and 1919 are few in number, and the average temperatures are given to whole degrees for these years. For the other years, with a larger number of observations, the mean values are given to tenths of a degree.

The area in which these temperature observations were taken embraces six 1° squares, namely, between 90° W. and 93° W. and between 27° N. and 29° N.

Monthly and annual mean sea-surface temperatures in the north-western Gulf of Mexico, 1912-33, inclusive

Year	Total number of observations for the year	January	February	March	April	May	June	July	August	September	October	November	December	Annual ¹
1912	326	67.2	64.0	67.2	70.4	75.8	78.8	82.5	84.3	83.2	80.2	74.0	69.3	74.7
1913	267	69.6	68.0	67.3	71.3	75.3	79.2	81.8	82.6	82.1	78.9	73.4	71.3	75.1
1914	225	67.9	67.1	66.8	71.2	76.3	81.1	83.8	84.6	82.3	77.9	74.0	70.0	75.2
1915	162	65.1	65.6	62.2	65.7	75.1	80.0	83.0	83.1	82.1	78.6	75.9	70.5	73.9
1916	155	70.0	68.1	68.3	72.2	77.0	81.1	83.7	83.0	82.3	79.2	74.5	72.2	76.0
1917	102	70	72	69	70	73	80	83	83	81	79	69	71	75.1
1918	27	67	70	70	71	75	80	(²)	82	82	(²)	75	70	75.5
1919	69	63	62	67	73	76	80	83	84	82	81	76	74	75.1
1920	116	69.4	64.2	66.0	71.0	79.0	81.7	82.3	83.5	83.8	78.4	71.9	67.8	74.9
1921	293	68.2	66.1	72.1	72.9	75.8	81.3	82.0	83.4	82.8	80.6	76.9	72.0	76.2
1922	427	72.7	71.2	70.1	73.7	78.2	81.6	83.1	83.7	82.5	79.0	76.0	72.5	77.0
1923	482	68.6	66.5	68.3	71.6	75.2	80.4	81.6	82.6	82.5	80.5	73.8	70.2	75.2
1924	641	67.9	65.7	65.1	69.2	74.0	83.0	84.1	85.4	83.8	77.9	74.3	70.5	75.1
1925	675	70.2	68.6	71.5	73.7	76.8	80.6	83.4	84.4	83.5	81.4	75.7	69.6	76.6
1926	759	65.6	65.7	67.7	69.7	75.3	81.6	83.7	83.6	82.9	81.1	73.6	71.8	75.2
1927	965	68.8	71.5	70.3	74.4	76.9	81.4	84.2	84.7	83.7	77.9	74.8	72.3	77.0

Monthly and annual mean sea-surface temperatures in the north-western Gulf of Mexico, 1912-33, inclusive—Continued

Year	Total number of observations for the year	January	February	March	April	May	June	July	August	September	October	November	December	Annual ¹
1928	886	68.5	66.9	69.6	70.4	75.3	80.3	83.3	85.3	82.7	80.6	76.0	71.1	75.8
1929	751	69.1	67.6	69.5	73.9	77.0	80.0	81.7	83.5	82.0	78.5	74.0	68.2	75.4
1930	642	66.9	66.6	66.7	70.2	75.7	79.1	83.2	83.9	81.7	79.4	74.3	69.6	74.8
1931	696	65.7	66.2	65.2	67.4	72.7	79.4	83.6	83.2	83.3	80.5	76.2	74.1	74.8
1932	684	71.4	72.2	69.6	71.9	75.1	80.4	84.4	83.8	82.4	77.8	72.4	68.6	75.8
1933	784	68.0	67.9	68.6	71.6	77.9	80.9	82.7	83.2	83.3	80.3	75.9	73.0	76.1
Number of years' record	22	22	22	22	22	22	21	22	22	22	21	22	22	22
Mean (1912-33)	68.2	67.4	68.1	71.2	75.8	80.5	83.1	83.7	82.6	79.6	74.6	70.9	75.5	

¹ All monthly values were carried to 1 decimal place for these means, which, therefore, are not exact means of figures given here.

² No data.

³ Interpolated values are used for missing months.

DUST STORMS, APRIL 1935

In some parts of the country, April 1935 was dustier than March. The region that had been popularly named the "dust bowl" had several more instances of dust than occurred the previous month. As will be seen from the chart, the number of days with dust storms or dusty conditions during April averaged well over 20 in northwestern Texas and adjacent sections. One station, Amarillo, Tex., reported dusty conditions on 28 days of the month.

An interesting feature of the distribution of the dusty conditions this month was the unusual amount reported

from the extreme Southeast, particularly northwestern and western Florida. As may be deduced from the spread of the dust southeastward, there were more drifts of air in that direction.

The plate gives an excellent view of a dust storm that occurred at Spearman, Tex., on April 14, 1935. The photograph was submitted by the official in charge, Houston, Tex., and was taken by F. W. Brandt, cooperative observer at Spearman, Tex.

CLIMATOLOGICAL TABLES

CONDENSED CLIMATOLOGICAL SUMMARY

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.